AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1.   (Currently Amended) A computer-implemented method for determining a production plan comprising:

~~allocating~~ assigning, by a computing device, resources to different customers having prioritized customer demands by iteratively solving mathematical linear programs;

optimizing, by said computing device, each mathematical linear program according to one of a plurality of sets of prioritized customer demands wherein each set contains a plurality of prioritized customer demands;

determining, by said computing device, each iterative solution for remaining ones of said plurality of sets of prioritized customer demands using results from a previous mathematical linear program solution;

outputting, by said computing device, said production plan based on optimizing said each mathematical linear program and determining each iterative solution,

independently determining backorder costs penalties for each set of prioritized customer demands using said computing device; and

~~allocating~~ assigning, by said computing device, by each successive linear programming model, a range of said backorder costs within a priority group to which resources are currently being ~~allocated~~ assigned.

2.   (Currently Amended) The method of claim 1, wherein said prioritized customer demands are hierarchical and comprises two or more levels of hierarchy.

3.   (Cancelled).

4.   (Previously Presented) The method of claim 1, wherein said mathematical linear

programs solved in each iteration use the solution to the previous mathematical linear program as

a starting solution.

5.   (Currently Amended) The method of claim 1, further comprising adding

constraints to said mathematical linear programs at each iteration to ensure that solutions to

subsequent iterations are ~~consistent with~~ <u>equal to</u> previous solutions.

6.   (Original) The method of claim 1, wherein said method uses a different

mathematical linear program for each iteration.

7.   (Currently Amended) The method of claim 1, wherein said ~~allocating~~ <u>assigning</u>

process solves said mathematical linear programs for higher prioritized <u>customer</u> demands before

solving for lower priorities.

8.   (Currently Amended) A computer-implemented method of ~~allocating~~ <u>assigning</u>

resources to a hierarchy of prioritized <u>customer</u> demands in a linear programming production

planning system for determining a production plan, said method comprising:

        aggregating, by said computing device, said prioritized <u>customer</u> demands into different

priority groups;

        ~~allocating~~ <u>assigning</u>, by said computing device, said resources to <u>customers having</u> the

highest priority group of prioritized <u>customer</u> demands using a first linear programming model;

~~allocating~~ <u>assigning</u>, by said computing device, remaining resources to the next highest

priority group of prioritized <u>customer</u> demands using a second linear programming model,

wherein said second linear programming model uses results from said first linear programming

model;

repeating said process of ~~allocating~~ <u>assigning</u> remaining resources, by said computing

device, to the remaining groups of prioritized <u>customer</u> demands in order of priority<u>, wherein</u>

<u>each subsequent linear programming model uses results from a previous linear programming</u>

<u>model</u>; and

outputting, by said computing device, a production plan based said processes of

~~allocating~~ <u>assigning</u> resources,

wherein during said ~~allocating~~ <u>assigning</u> processes, each linear programming model

~~allocates~~ <u>assigns</u> a range of backorder costs within the priority group to which the resources are

currently being ~~allocated~~ <u>assigned</u>.

9.   (Currently Amended) The method in claim 8, wherein when repeating said

process of ~~allocating~~ <u>assigning</u> remaining resources, said method uses a different linear

programming model for each ~~iteration~~ <u>repetition of said process of assigning remaining</u>

<u>resources</u>.

10.   (Currently Amended) The method in claim 9, wherein each different linear

programming model uses as ~~a starting point~~ <u>an initial constraint</u> a program solution of the

previous linear programming model.

11.   (Currently Amended) The method in claim 8, wherein during said ~~allocating~~

<u>assigning</u> processes, each linear programming model fixes variables associated with priority

groups that have a lower priority than the priority group to which the resources are currently

being ~~allocated~~ <u>assigned</u>.

12.   (Cancelled).

13.   (Original) The method in claim 8, further comprising dividing said priority groups

into different sub-priority tiers.

14.   (Previously Presented) The method in claim 13, wherein said sub-priority tiers

can be processed simultaneously.

15.   (Currently Amended) A computer-implemented method of ~~allocating~~ <u>assigning</u>

resources to a hierarchy of prioritized <u>customer</u> demands in a linear programming production

planning system for determining a production plan, said method comprising:

        aggregating, by said computing device, said prioritized <u>customer</u> demands into different

priority groups;

        ~~allocating~~ <u>assigning</u>, by said computing device, said resources to <u>customer having</u> the

highest priority group of prioritized <u>customer</u> demands using a first linear programming model;

        ~~allocating~~ <u>assigning</u>, by said computing device, remaining resources to the next highest

priority group of prioritized <u>customer</u> demands using a second linear programming model,

wherein said second linear programming model uses results from said first linear programming

model;

repeating said process of ~~allocating~~ <u>assigning</u> remaining resources, by said computing

device, to the remaining groups of prioritized<u> customer</u> demands in order of priority using a

different linear programming model for each iteration<u>, wherein each subsequent linear</u>

<u>programming model uses results from a previous linear programming model</u>; and

outputting, by said computing device, a production plan based said processes of

~~allocating~~ <u>assigning</u> resources,

wherein during said ~~allocating~~ <u>assigning</u> processes, each linear programming model

~~allocates~~ <u>assigns</u> a range of backorder costs within the priority group to which the resources are

currently being ~~allocated~~ <u>assigned</u>.

16.   (Currently Amended) The method in claim 15, wherein each different linear

programming model uses as ~~a starting point~~ <u>an initial constraint</u> a program solution of the

previous linear programming model.

17.   (Currently Amended) The method in claim 15, wherein during said ~~allocating~~

<u>assigning</u> processes, each linear programming model fixes variables associated with priority

groups that have a lower priority than priority group to which the resources are currently being

~~allocated~~ <u>assigned</u>.

18.   (Cancelled).

19.   (Original) The method in claim 15, further comprising dividing said priority

groups into different sub-priority tiers.

20.   (Previously Presented) The method in claim 19, wherein said sub-priority tiers

can be processed simultaneously.

21.   (Currently Amended) A program storage device readable by machine, tangibly

embodying a program of instructions executable by the machine to perform a method of

~~allocating~~ assigning resources to a hierarchy of prioritized customer demands in a linear

programming production planning system for determining a production plan, said method

comprising:

aggregating said prioritized customer demands into different priority groups;

~~allocating~~ assigning said resources to customers having the highest priority group of

prioritized customer demands using a first linear programming model;

~~allocating~~ assigning remaining resources to the next highest priority group of prioritized

customer demands using a second linear programming model, wherein said second linear

programming model uses results from said first linear programming model; and

repeating said process of ~~allocating~~ assigning remaining resources to the remaining

groups of prioritized customer demands in order of priority, wherein each subsequent linear

programming model uses results from a previous linear programming model; and

outputting, by said computing device, a production plan based said processes of

~~allocating~~ assigning resources,

wherein during said ~~allocating~~ assigning processes, each linear programming model

~~allocate~~ assigns a range of backorder costs within the priority group to which the resources are

currently being ~~allocated~~ assigned.

22.   (Currently Amended) The program storage device in claim 21, wherein when

repeating said process of ~~allocating~~ <u>assigning</u> remaining resources, said method uses a different

linear programming model for each iteration.

23.   (Currently Amended) The program storage device in claim 22, wherein each

different linear programming model uses as ~~a starting point~~ <u>an initial constraint</u> a program

solution of the previous linear programming model.

24.   (Currently Amended) The program storage device in claim 21, wherein during

said ~~allocating~~ <u>assigning</u> processes, each linear programming model fixes variables associated

with priority groups that have a lower priority than the priority group to which the resources are

currently being ~~allocated~~ <u>assigned</u>.

25.   (Cancelled).

26.   (Original) The program storage device in claim 21, wherein said method further

comprises dividing said priority groups into different sub-priority tiers.

27.   (Previously Presented) The program storage device in claim 26, wherein said sub-

priority tiers can be processed simultaneously.